

Claims

1. An antimicrobial and non-cytotoxic coating material, comprising:
 - a) a biocide layer containing a biocidal agent, and
 - b) a transport control layer covering the biocide layer, having a thickness
- 5 and porosity selected to release an antimicrobial and non-cytotoxic quantity of the active biocidal agent out of the biocide layer and through the transport control layer.
2. A coating material according to claim 1, characterised in that the
- 10 transport control layer has a gas permeability for oxygen (O_2) in the range between 100 and 1000 ($cm^3 \text{ bar} / (\text{day } m^2)$), preferably in the range between 500 and 700 ($cm^3 \text{ bar} / (\text{day } m^2)$).
3. A coating material according to one of claims 1 or 2, wherein the
- 15 biocidal agent is an inorganic biocide.
4. A coating material according to claim 3, wherein the biocidal agent is selected from the group comprising silver, copper and zinc, their ions and their metal complexes, or a mixture or alloy comprising two or much of said
- 20 elements.
- 5 A coating material according to one of claims 3 or 4, wherein the biocidal agent has a mean particle size of 5 – 100 nm.
- 25 6. A coating material according to one of the preceding claims, wherein the biocidal layer also includes: gold, platinum, palladium, iridium, tin, antimony, their ions, their metal complexes, or an alloy of the biocidal agent with one or a plurality of said elements.
- 30 7. A coating material according to one of the preceding claims, wherein the transport control layer has a substrate material that is selected from the group comprising

- a) an organic substrate material, in particular a plasma polymer, a sol-gel, a varnish or lacquer, and a siliconised substrate material, or
- b) an inorganic substrate material, in particular SiO_2 and SiC , a metal oxide, in particular TiO_2 and Al_2O_3 , and a non-biocidal metal, in particular
- 5 titanium or medical stainless steel.

8. A coating material according to claim 7, wherein the transport control layer has a silicon content of 20 – 600%, a carbon content of 10 – 30% and an oxygen content of 30 – 50%.

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9. A coating material according to one of the preceding claims, wherein the biocidal layer has a mean thickness of 5 – 100 nm.

10. A coating material according to one of the preceding claims, wherein

15 the transport control layer has a mean thickness of 5 – 500 nm.

11. Use of a coating material according to one of claims 1 to 10 for producing an antimicrobial and non-cytotoxic coating on a solid body.

20 12. Use of a coating material according to one of claims 1 to 10 to produce an antimicrobial and non-cytotoxic coating on a medical product, in particular a catheter, a wound covering, a contact lens, an implant, a medical nail and/or screw, bone fixation nails, a dental implant, a medical instrument, or on a sanitary product, in particular on a sanitary towel or diaper, or on packaging

25 for a medical or sanitary product, or on a component for producing or processing foodstuffs, or on some other product requiring special hygiene precautions.

13. Use of a transport control layer having a gas permeability for oxygen

30 (O_2) in the range between 100 and 1000 ($\text{cm}^3 \text{ bar}$) / (day m^2), preferably in the range between 500 and 700 ($\text{cm}^3 \text{ bar}$) / (day m^2), to produce a coating material according to one of claims 1 to 10.

14. Use of a transport control layer having a gas permeability for oxygen (O_2) in the range between 100 and 1000 ($cm^3 \text{ bar} / (\text{day } m^2)$), preferably in the range between 500 and 700 ($cm^3 \text{ bar} / (\text{day } m^2)$), to cover and/or enclose a biocidal agent in order to enable an antimicrobial and non-cytotoxic quantity of said substance to be released through the transport control layer.
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